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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/528,766	03/17/00	RADUE	M OMCO: 0056

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QM02/0918

EXAMINER

SOLAK, T

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 09/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)
	09/528,766	RADUE, MARTIN L.
	Examiner	Art Unit
	Timothy P. Solak	3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10 August 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-24 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 17 March 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 15a-15d and 15f-15g. Correction is required.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “coil assembly disposed between the permanent magnet and the pump section” (claims 3, 10 and 17) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

The disclosure is objected to because of the following informalities:

- ✓ Recitation of “plunger 142” on page 10, line 11 would be clearer if rewritten -- plunger 124--.
- ✓ Recitation of “plunger 128” page 14, lines 4-5 would be clearer if rewritten --base 128--.

Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the location of the coils between the “permanent magnet” and pump section needs to be disclosed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 10 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 10 and 17 recite the limitation that the coils are located between the “permanent magnet” and either the pump section or assembly, rendering the claims indefinite. In the alternate embodiments of Figures 4 and 5, “the lower portion of bobbin 190 may thus interface directly with a plunger (see plunger 124 of Figures 2 and 3)”. The coils are never located between the “permanent magnet” and either the pump section or assembly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-9, 12-16 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hultman (4,787,823), in view of Martin (4,616,930). Hultman teaches a reciprocating fuel pump (column 2, lines 63-66) comprising: a drive section 30 and a pump section 76. Hultman teaches a drive assembly 48 located within the central volume of the drive section (see Figure 1) includes: a drive member 50, a seal 92, an inlet check valve 98, an outlet

check valve 104, a nozzle 200, a first magnet 40 and a coil assembly 64 having a winding.

Hultman discloses the coil assembly is "movable reciprocally axially along a central axis upon application of alternating polarity signals to the winding" (column 7, lines 24-27). Hultman further discloses a pump member 72 is secured to and movable with the coil assembly.

Although Hultman teaches most of the limitations of the claims including a permanent magnet used in a reciprocating pump (column 1, lines 26-33) and that electro-magnet 40 is used in place of a permanent magnet (column 5, lines 11-14), he does not disclose an embodiment using a permanent magnet. It was old and well known in the art of magnetics that a common magnetic field could be provided by either, an ordinary permanent magnet or it's art related equivalent, an electromagnet. Further it was well known in the art, that using a permanent magnet in place of an electromagnet advantageously improved field stability, reduced power consumption and/or eliminated heating effects (Martin column 2, lines 58-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a permanent magnet in the pump disclosed by Hultman, to have advantageously improved field stability, reduced power consumption and/or eliminated heating effects.

Claims 3, 10-11 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hultman, in view of Martin (both mention previously), in further view of Lequesne (4,829,947). Although Hultman teaches most of the limitations of the claims including a reciprocating fuel pump with a permanent magnet, he does not disclose at least two permanent magnets in different locations. Lequesne disclosing a magnetic actuator, specifically teaches at least two permanent magnets 37-38 located in different positions (see Figures 1-3). Lequesne teaches the permanent magnets and their locations advantageously completed the magnetic

circuit (column 5, lines 58-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the permanent magnets taught by Lequesne, in the pump disclosed by Hultman, to have advantageously completed the magnet circuit.

Response to Arguments

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

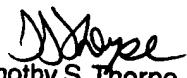
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- ❖ Patel (4,533,890) teaches using a permanent magnet in conjunction with an electromagnet advantageously increases the actuation speed.
- ❖ Graner et al. (5,161,779) teach a magnet solenoid with a coil and a permanent magnet.
- ❖ Brinkman (4,266,523) teaches an electromagnetic pump actuated by alternating polarity.
- ❖ Mardell (4,266,523) teaches a fuel injection pump with a coil and a permanent magnet.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy P. Solak whose telephone number is 703-308-6197. The examiner can normally be reached on Monday through Thursday from 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 703-308-0102. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7763 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.


Timothy S. Thorpe
Supervisory Patent Examiner
Group 3700


tpss
September 12, 2001